

Student Performance

Score Interpretation

To help provide appropriate interpretation of the 2010 MSA Science operational test scores, two types of scores were created: scale scores and performance levels and descriptions.

Scale Scores

As explained in the proceeding section, the 2010 MSA Science tests yield scale scores that range between 240 and 650. As a result of calibration, equating, and scaling the scale scores from the two base forms are comparable within the same grade, but not across grade levels. The only inferences that can be appropriately drawn from scale scores are that higher scale scores represent higher performance on the MSA Science test. Thus, performance levels and descriptions can give a specific interpretation other than a simple interpretation because they were developed to bring meaning to the scale scores.

Performance Levels and Descriptions

Performance levels and descriptions provide specific information about students' performance levels and help interpret the 2010 MSA Science scale scores. They describe what students at a particular level generally know and are able to do and can be applicable to all students within a grade level.

Performance standards for the MSA Science tests were established in 2007. Details of the standard-setting process and outcomes are provided in MSA Science standard-setting technical report (Pearson, 2007). The Maryland State Board of Education reviewed the performance standards recommended by the standard-setting committee and made a modification in the recommendation. The performance standards approved by the State Board are listed in Table 9. Students whose scale scores are lower than the Proficient cut score are classified as "Basic." The highest performance group whose scale score is equal or higher than Advanced cut score belongs to the "Advanced" group. The middle group is called "Proficient."

Table 9. Scale score cut scores for grades 5 and 8 MSA Science.

| Grade | Proficient Cut score | Advanced Cut score |
|-------|-------------------------|-----------------------|
| 5 | 391 | 467 |
| 8 | 387 | 478 |

Tables 10 reports percentages of grade 5 students in three performance groups and the descriptive statistics for the selected subgroups (gender and ethnicity). The analysis was conducted for all students in grades 5 as well as by administration mode.

Table 10. Grade 5 Performance Level Percentages and Summary Statistics

| | Overall | | | | | | Online Administration | | | | | | Paper Administration | | | | | |
|---------------------|--------------------|----|----|------|------|-------|-----------------------|----|----|------|------|-------|----------------------|----|----|------|------|-------|
| | Performance Levels | | | Mean | SD | N | Performance Levels | | | Mean | SD | N | Performance Levels | | | Mean | SD | N |
| | B | P | A | | | | B | P | A | | | | B | P | A | | | |
| Subgroup | | | | | | | | | | | | | | | | | | |
| <i>All Students</i> | | | | | | | | | | | | | | | | | | |
| All | 34 | 56 | 9 | 408 | 45.3 | 59891 | 33 | 58 | 9 | 409 | 43.3 | 31796 | 35 | 54 | 10 | 408 | 47.5 | 28095 |
| <i>Gender</i> | | | | | | | | | | | | | | | | | | |
| Male | 34 | 55 | 11 | 409 | 47.0 | 30809 | 33 | 57 | 10 | 410 | 44.9 | 16204 | 36 | 53 | 11 | 408 | 49.2 | 14605 |
| Female | 34 | 58 | 8 | 408 | 43.5 | 29071 | 33 | 60 | 7 | 408 | 41.7 | 15592 | 35 | 56 | 9 | 408 | 45.5 | 13479 |
| <i>Ethnicity</i> | | | | | | | | | | | | | | | | | | |
| Native American | 33 | 62 | 5 | 407 | 40.9 | 225 | 33 | 63 | 4 | 405 | 40.7 | 125 | 34 | 60 | 6 | 410 | 41.2 | 100 |
| Asian | 17 | 63 | 19 | 429 | 45.2 | 3693 | 18 | 65 | 17 | 427 | 43.8 | 1736 | 17 | 62 | 21 | 432 | 46.3 | 1957 |
| Black | 52 | 45 | 3 | 388 | 40.7 | 22759 | 51 | 47 | 2 | 389 | 39.3 | 11187 | 53 | 44 | 3 | 387 | 41.9 | 11572 |
| White | 18 | 66 | 15 | 426 | 41.0 | 27512 | 20 | 67 | 13 | 423 | 40.1 | 16273 | 16 | 66 | 18 | 430 | 41.8 | 11239 |
| Hispanic | 50 | 48 | 3 | 391 | 41.9 | 5689 | 48 | 49 | 2 | 392 | 40.4 | 2475 | 50 | 46 | 3 | 390 | 43.1 | 3214 |

Note: Performance Levels, B=Basic, P=Proficient, A=Advanced

Tables 11 reports percentages of grade 8 students in three performance groups and the descriptive statistics for the selected subgroups (gender and ethnicity). The analysis was conducted for all students in grades 5 as well as by administration mode.

Table 11. Grade 8 Performance Level Percentages and Summary Statistics

| | Overall | | | | | | Online Administration | | | | | | Paper Administration | | | | | |
|---------------------|--------------------|----|----|------|------|-------|-----------------------|----|----|------|------|-------|----------------------|----|----|------|------|-------|
| | Performance Levels | | | Mean | SD | N | Performance Levels | | | Mean | SD | N | Performance Levels | | | Mean | SD | N |
| | B | P | A | | | | B | P | A | | | | B | P | A | | | |
| Subgroup | | | | | | | | | | | | | | | | | | |
| <i>All Students</i> | | | | | | | | | | | | | | | | | | |
| All | 32 | 61 | 7 | 408 | 47.9 | 61729 | 31 | 63 | 6 | 409 | 45.6 | 38698 | 34 | 57 | 8 | 408 | 51.5 | 23031 |
| <i>Gender</i> | | | | | | | | | | | | | | | | | | |
| Male | 33 | 59 | 8 | 409 | 50.1 | 31419 | 32 | 61 | 7 | 409 | 47.8 | 19521 | 35 | 56 | 9 | 408 | 53.6 | 11898 |
| Female | 32 | 62 | 6 | 408 | 45.5 | 30291 | 31 | 64 | 5 | 408 | 43.2 | 19177 | 33 | 59 | 7 | 408 | 49.1 | 11114 |
| <i>Ethnicity</i> | | | | | | | | | | | | | | | | | | |
| Native American | 27 | 67 | 6 | 410 | 43.7 | 198 | 29 | 66 | 6 | 409 | 42.5 | 140 | 24 | 71 | 5 | 412 | 47.0 | 58 |
| Asian | 13 | 69 | 18 | 437 | 46.7 | 3749 | 15 | 71 | 15 | 432 | 45.0 | 1944 | 11 | 67 | 22 | 442 | 47.8 | 1805 |
| Black | 52 | 47 | 1 | 384 | 41.7 | 22991 | 49 | 49 | 1 | 387 | 40.0 | 14269 | 56 | 43 | 1 | 380 | 43.9 | 8722 |
| White | 16 | 73 | 11 | 428 | 42.9 | 28996 | 16 | 74 | 10 | 426 | 41.4 | 19052 | 16 | 70 | 14 | 430 | 45.5 | 9944 |
| Hispanic | 47 | 51 | 2 | 391 | 43.5 | 5775 | 48 | 50 | 2 | 390 | 43.0 | 3293 | 46 | 51 | 3 | 392 | 44.1 | 2482 |

Note: Performance Levels, B=Basic, P=Proficient, A=Advanced